JPRS L/8573
16 July 1979
(FOUO 17/79)

USSR Report

RESOURCES

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

For further information on report content call (703) 351-2938 (economic); 3468 (political, sociological, military); 2726 (life sciences); 2725 (physical sciences).

APPROVED FOR RELEASE: 2007/02/09: CIA-RDP82-00850R000100070018-4

JPRS L/8573

16 July 1979

USSR REPORT

RESOURCES

(FOUO 17/79)

CONTENTS PAGE

ELECTRIC POWER AND POWER EQUIPMENT

PLAN FOR POWER ENGINEERING AND EQUIPMENT INDUSTRY SECTORS DISCUSSED

Moscow GIDROTEKHNICHESKOYE STROITEL'STVO in Russian No 5, May 79 pp 1-5

[Article: "Socialist Obligations* of the Collective of the Enterprises and Organizations of the USSR Ministry of Power Engineering and Electrification for 1979"]

[Text] The collectives of power engineers and power construction workers, just as the entire Soviet people, are persistently fighting to implement the resolutions of the 25th CPSU Congress. In competing for the successful fulfillment of the 1978 assignments, the power engineering workers in the ministry's electrical power stations generated 1,110.7 billion KWH. The industrial product output amounted to 19,515.5 million rubles, including 185 million rubles above the plan. Some 113 million rubles of above plan income were received. The specific fuel consumption per delivered kilowatt hour of electrical power was reduced from 334.4 down to 331.1 grams, because of which, 2.9 million tons of conventional fuel were saved in the sector.

The power construction workers have placed the following on-line ahead of schedule: power unit No. 8 with a capacity of 500,000 KW at the Reftinskaya GRES, power units of 300,000 KW each at the Syrdar'inskaya, Iriklinskaya and Stavropol'skaya GRES's, power units of 210,000 KW each at the Surgutskaya and Shaturskaya GRES's, the second power unit at the Chernobyl'skaya AES and 3 hydroelectric sets with a capacity of 260,000 KW each at the Ingurskaya GES.

The following were placed in service for Power Engineering Day: the first hydroelectric set of the Sayano-Shushenskaya GES with a capacity of 640,000 KW and the eighth hydroelectric set of the Nurekskaya GES at 300,000 KW.

*They are printed using abreviations in accordance with the professional specialization of this journal.

The first stage of the Volgodonsk "Acommash" plant for the production of nuclear power equipment with a capacity of 3 million KW annually was placed in service.

General secretary of the CPSU Central Committee and chairman of the Presidium of the Supreme Soviet of the USSR, comrade L.I. Brezhnev rated the labor of the leading collectives highly in his greetings to the builders, installers and operational workers of the Sayano-Shushenskaya and Ingurskaya GES's, Chernobyl'skaya AES, the 750 KV Vinnitsa - Al'dertirsha power transmission line, "Atommash", and the Orenburg Gas Complex, which are the most important national economic facilities placed in service in the third year of the five-year plan. These greetings generated a new wave of creative forces in all of the collectives of power engineers and power construction workers.

The collectives of 18 power systems, electrical power stations, plants and construction projects are in the vanguard of socialist competition, and have been awarded for their successful completion of socialist obligations for 1978 with the competitive Red Banners of the CPSU Central Committee, the USSR Council of Ministers, the AUSSTU and the Komsomol Central Committee, including: Litovglavenergo, Dneproenergo, Kostromaenergo, the Razdanskaya and Karmanovskaya GRES's, the Kol'skaya AES, TETs-23 of Mosenergo, the "Yuzhteploenergomontazh", "Gidroelektromontazh", "Tsentrsel'elektroset'stroy" trusts, Nurekgesstroy, Krasnoyarskgesseroy, the associations of "Dneproenergostroyindustriya" and others.

In the fourth year of the 10th Five-Year Plan, the power engineers and power construction workers have resolved to reinforce the successes which have been achieved, compensate for inadequate fulfillment of the plan for placing capacities on-line in 1978, transform the year 1979 into a year of shock labor, and expand socialist competition for the successful fulfillment of the plan and the socialist obligations of the current year, and thereby create the conditions for the successful completion of the five-year plan as a whole.

Socialist competition will be expanded in the sector for a fitting celebration of the 60th anniversary of the Leninist GOELRO [State Commission for the Electrification of Russia] plan, which coincides in time with the conclusion of the 10th Five-Year Plan. It is planned that by the day of this celebration, the overall capacity of the electrical power stations of the ministry will be brought up to 248 million KW, while the annual level of electrical power generation for the year will be brought up to 1,340-1,380 billion KWH.

The collectives of the Reftinskaya and Kashirskaya GRES's, the Moscow "Electroshchit" plant, and the construction brigades of G.M. Fomenko from "Atommash", M.P. Mashchenko from the Sayano-Shushenskaya GES and M.D. Ivchenko from the Chernobyl'skaya AES have all come forward with a patriotic initiative to expand socialist competition in the sector.

Following the example of Leningrad enterprises and organizations, which in conjunction with the builders of the Sayano-Shushenskaya GES are successfully realizing a creative cooperation, directed towards curtailing construction times and assuring a high level of work quality, the collective of builders of Ekibastuzskaya GRES No. 1 have organized labor cooperation with 39 machine construction enterprises and have taken on comprehensive socialist obligations for 1979 for the placement of the first two power units of 500,000 KW each on-line ahead of schedule.

The collective of 2 million workers, engineering and technical workers and office workers is assuming the following socialist obligations for 1979 in reply to the resolutions of the November (1978) plenum of the CPSU Central Committee and the appeal of the CPSU Central Committee to all electors and citizens of the Union of Soviet Socialist Republics, striving to meet the 60th anniversary of the first communist free labor day in a worthy fashion:

In the Capital Construction Sector

Implement measures to concentrate resources on 1979 construction starts. Direct the efforts of builders and installation workers towards increasing production efficiency and the quality of construction and installation work, curtail the duration of the erection of facilities, reduce the number of incompleted facilities, losses in work time, downtimes of machines and mechanisms, and save construction materials. Organize the wide-scale introduction of advanced methods, labor, production and competition - brigade subcontracting, the initiative of Sverdlovsk builders, "the five-year assignment of the brigade -- with a smaller staff", the initiatives of the Rostov enterprises to "work without slowdowns", as well as competition under the slogan "the work contest."

Overfulfill the annual plan for construction and installation work in the "electrical power engineering" sector through the implementation of the measures enumerated above.

Fulfill the plan for placing power capacities in the amount of 14.742 million KW on-line in 1979, and of them, 2.66 million KW ahead of schedule, including:

--Hydroelectric set No. 2 (640,000 KW) of the Sayano-Shushenskaya GES by the 62nd anniversary of the Great October Revolution;

--Place the power capacities at the Ust'-Ilimskaya GES on-line by the 60th anniversary of the first communist voluntary labor day.

Of the overall power capacity planned for placement in operation in 1979, place no less than 7.5 million KW on-line by 1 November, at the beginning of the fall-winter load maximum.

Bring the following in by Power Engineering Day in the construction of the most important industrial facilities:

--The second stage of the Volgodonsk "Atommash" plant for the production of nuclear power equipment with a capacity of one million kilowatts annually;

--The capacities at the Volzhskiy automobile plant for the production of 10,000 light cross-country vehicles annually;

--The first stage of the pulp plant of the Ust'-Ilimskiy forest products complex for the production of 250,000 tons of bleached pulp annually.

In commemoration of the 30th anniversary of the CEMA and to further deepen socialist economic integration, meet all contractual obligations for placing power units in operation in the electrical power stations of the GDR, Bulgarian Peoples Republic, Polish Peoples Republic, the Socialist Federal Republic of Yugoslavia and in Cuba by Power Engineering Day.

Assure the turnover of no less than 80 percent of the industrial facilities, electrical power transmission lines and substations, residential apartment houses as well as facilities for social and personal and cultural purposes with excellent and good work quality ratings.

Overfulfill the plan assignment for the growth in labor productivity in construction by 0.1 points, somehting which will allow for bringing the overall gain in the ministry up to 11,500 rubles.

Use brigade subcontracting for construction and installation work in the amount of 1,500 million rubles, or for 25 percent of the 1979 plan.

In continuing the work to introduce a lump wage payment system, encompass no less than 68 percent of the workers and piece-rate workers in it.

Increase the level of standardization of the labor of production and industrial personnel as compared to 1978, and bring it up to 75 percent in 1979, with 92 percent of this based on technically substantiated norms.

Achieve the additional savings above the established norms for the consumption of materials in construction of: 11,000 tons of metal, 29,000 tons of cement and 18,000 m^3 of lumber.

Increase the shift service factor of construction machines by 2 percent by taking steps to improve the utilization of construction machines, and boost the level of technical servicing.

To further increase the level of mechanization and automation of construction and installation work, intoruduce 32 prototypes of new construction machines,

mechanisms, production lines and automation equipment; reduce the volume of work performed manually by 2 percent as compared to the established plan level, for which no less than 400 standard sets of mechanized and manual tools are to be introduced and supplied to construction projects.

In the Industrial Production Sector

By means of better using production capacities, increasing product quality, the implementation of measures to accelerate scientific and technical progress, reinforcing operacional economy, organizing a clear cut operational cycle for plants and repair enterprises, and the execution by each collective of the obligations for the deliveries of products in accordance with the economic agreements in the established products list:

--Completely fulfill the 1979 state plan for the industry product output ahead of schedule, on 29 December; produce output above the plan by 20 million rubles, including domestic consumption goods by the amount of 300,000 rubles;

--Achieve no less than 75 percent of the increase in industrial product volume through an increase in labor productivity.

Achieve the awarding of the state seal of quality to 20 types of products, including: 4 A80-4 electric motors, the KS 30-32B and GP50T gantry cranes, MRK 690A drilling machine, V-410 vibro-pile-drivers, leakproof valves, electric winches with a load lifting capacity of 5 tons, metal poles for electric power transmission lines, heat insulation materials, porcelain and glass high voltage insulators and steel reinforced concrete products.

Manufacture products of the highest quality category in the "machine construction" sector 5 million rubles above the plan and in the "industrial construction materials", 12 million rubles above the plan.

Deliver bridge cranes with a load capacity of 50/10 tons ahead of schedule to the Ekibastuzenergostroy" trust in the first biennium instead of in the third quarter of 1979.

In the Scientific Research, Design and Project Planning and Survey Sector

The workers of the scientific research and project planning and design institutes of the power engineering sector will direct their efforts towards the realization of large scale scientific and technical programs for the development of power engineering, increasing the efficiency and quality of scientific and project planning developmental work, place new technological processes in production, as well as equipment and materials, industrialize power engineering construction, develop creative links between scientific workers and production collectives based on the experience of 28 Leningrad organizations participating in the construction of the Sayano-Shushenskaya GES, for which the following will be obligatory:

--Fulfill the annual plan for the introduction of new equipment in all divisions ahead of schedule, by Power Engineering Day;

--Fulfill the plan for project planning and survey work in accordance with the basic indicators ahead of schedule, on 28 December;

--Improve inventive, patent and licensing work, assure an increase in the number of inventions by no less than 5 percent as compared to 1978;

--Achieve an economic efficiency by introducing in production the results of scientific research in the field of power engineering, in the amount of no less than 3.5 rubles (as compared to 3.3 rubles in 1978) per ruble of investment in scientific research work;

--Turn over no less than 30 percent of the project planning estimation documentation with a rating of excellent in the course of the year;

--Issue the working documentation for the volume of construction and installation work for construction starts in 1980 ahead of schedule, by 28 August.

Offer practical assistance to the workers of enterprises and construction projects in introducing into production the inventions and efficiency expert proposals having an economic effect of 200 million rubles, for the purpose of having an economic effect of 200 million rubles, and for the purpose of developing creative cooperation with production collectives.

By virtue of introducing the achievements of scientific and engineering progress, and refining component and structural design solutions, achieve a cost reduction for construction of 30 million rubles and a reduction in labor outlays in construction by 5 million man-days in 1979.

Complete the engineering planning for the unified building of the stations for the Zagorskaya, Kayshyadorskaya and other GAES's with a head of 100 m ahead of schedule and a high level of engineering quality by 22 December.

Develop at a high technical level:

--The engineering project plan for the AES in the Polish Peoples Republic;

--The engineering project plan and working drawings for TETs-4 in the Mongolian Peoples Republic in Ulan-Bator for the volume of construction and installation work in 1980;

--The general plan for the development of the electrical networks of the Socialist Republic of Vietnam over the period to 1985.

In the Area of Social Development of the Collectives

Place no less than 1,932,000 m^2 of living space in service ahead of schedule for the purpose of realizing the comprehensive plans for the social development of collectives, which provide for a further improvement in working conditions as well as vacation and living conditions of the workers, and a reduction in personnel turnover at enterprises and construction sites.

Bring in social and cultural-personal services facilities ahead of schedule:

--Kindergartens with 9,230 openings;

--Hospitals with 700 beds;

--Health clinics for 1,530 visits;

--General eduction schools for 8,340 pupils;

--Technical trade schools with 5,500 student openings;

--Pioneer camps and preventive health maintenance centers.

Provide for the annual training of no less than 121,000 new workers in courses to increase skill levels in training combines, increase the qualifications of 414,000 workers and 118,000 engineering and technical personnel.

By introducing progressive forms of trade services in the enterprises of Glavurs [expansion unknown] fulfill the overall plan for goods turnover and product output in public catering by 30 December, 1979, and sell 55 million rubles more of industrial and food products than were sold in 1978.

Boost the level of goods sold on a self-service basis up to 49 percent.

By utilizing the waste foodstuffs of public catering enterprises, gain 1,000 tons of additional hog weight.

Place 106 dining halls in service with 17,480 seats at power engineering enterprises and construction projects, as well as 37 stores with an area of 19,090 m^2, 18 fruit and vegetable warehouses with a capacity of 10,460 tons, 3 salt curing and pickling facilities for 490 tons, 12 warehouses with an area of 26,430 m^2 and 11 refrigerators with a capacity of 2,950 tons.

Reduce personnel turnover by 2.1 points, including: by no less than 3 in construction, 1.2 in operation and 1.6 points in the building industry.

Over the course of the year, eliminate wooden residential barracks of no less than 180,000 m^2 area and resettle the workers and office personnel from them into residences with modern conveniences.

Complete the 1979 assignments of the "comprehensive plan for the improvement of labor safety, working conditions and sanitation and public health measures for 1976-1980" by Power Engineering Day.

In Agriculture

Assure that the subcontracting organizations of the ministry place the 0.38 - 20 KV electrical power transmission lines in service ahead of schedule for the power systems in the nonchernozem region of the RSFS are in the amount of 25,000 km, as well as in an amount of 300 km above the plan in the Kaluzhskaya, Ivanovskaya, Kostromskaya, Smolenskaya, Kirovskaya and Permskaya oblasts, as well as in the Mordovskaya ASSR.

Develop the project planning estimate documentation for the 1,250 construction projects of the nonchernozem region of the RSFSR (electrical power transmission lines and substations for animal husbandry complexes and other agricultural facilities) on the basis of electrification for the further expansion of agricultural production of the region.

Carry out work in the kolkhozes and sovhkozes above the plan levels in 1979 in the repair and organizational and technical assistance for the operation of electrical networks and electrical substations in the amount of 385,000 rubles.

Carry out the repair and provide organizational and technical assistance in the operation of electrical power plants, grain conveyors, elevators, grain cleaning points and other agricultural facilities which participate in the harvest in the amount of 1.9 million rubles prior to the start of the 1979 harvest season.

In the Environmental Protection Sector

Perform construction and installation work in the erection of environmental protection facilities in an amount of no less than 119 million rubles.

Complete the studies on the development of recommendations for the design of an engineering ecological device for the protection of fish in deep water intakes.

* * *

Power engineers and power construction workers will strive to see that the socialist obligations are met by each participant in the competition, while the personal five-year assignments are fulfilled for the 110th anniversary of the birth of V.I. Lenin.

At the same time, the appeal is being made to the collectives of related enterprises and organizations of the ministry of power engineering machine

construction, the ministry of the electrical engineering industry, the ministry of the coal industry, the ministry of the gas industry, the ministry of communications arteries, the ministry of the chemical industry, and the ministry of the oil refining and petrochemical industry to perform the joint obligations in the adopted time period, and even more actively develop work cooperation, something which will be a reliable guarantee of achieving the overall state final results.

The collectives of power engineers and power construction workers assure the Leninist CPSU Central Committee, the Politburo of the CPSU Central Committee and general secretary of the CPSU Central Committee and chairman of the Supreme Soviet of the USSR, comrade L.I. Brezhnev, that in the fourth year of the five-year plan they will even more actively expand the fight for the fulfillment and overfulfillment of the plan and the socialists obligations, overcome the difficulties and defects which interfere with the work, eliminate the lag which has developed over the three years of the five-year plan with respect to certain technical economic indicators, and thereby they will create the conditions for the successful completion of the 10th Five-Year Plan as a whole.

The obligations were discussed and adopted at the general meetings of the collectives of the enterprises and organizations of the USSR Ministry of Power Engineering and Electrifcation, and were approved by the boards of the ministry and the presidium of the central committee of the trade union of workers of electrical power stations and the electrical engineering industry at the expanded meeting of March 12, 1979.

8225
CSO:1822

ELECTRIC POWER AND POWER EQUIPMENT

UDC 624.132.345.004.1

THE BASIC DEVELOPMENTAL TRENDS IN HYDRAULIC EXCAVATION IN WATER ENGINEERING AND POWER ENGINEERING CONSTRUCTION

Moscow GIDROTEKHNICHESKOYE STROITEL'STVO in Russian No 5, May 79 pp 6-10

[Article by engineers G.M. Maslykov and S.T. Rozinoyer]

[Text] The "Gidromekhanizatsiya" ["Hydraulic Excavation"] trust of the USSR Ministry of Power Engineering and Electrification is presently managing the work at more than 150 water engineering, power engineering, water management and industrial projects. The annual volume of earth-moving (based on the earth being handled) amounts to about 130 million m^3, and the construction installation work runs to 95 million rubles. The decisive importance of hydraulic excavation in the erection of the largest hydroelectric power stations on plain rivers is well-known. The danger existed at one time that with the completion of the construction of hydroelectric units on these rivers, where it was necessary to raise hydraulic fill dams unprecedented in terms of volume and length, and where there were open workings with a practically unlimited reserve of sandy soil, the possibilities of using hydraulic excavation in power engineering construction would be exhausted, in any case, there would be no effective development of hydraulic excavation. This danger has not been borne out in any respect.

Despite the change in the structure of construction with the stability of placing GES capacities on-line, and the acceleration in the development of thermal and nuclear power engineering as well as the shifting of large construction projects to the nation's east to regions with difficult soils and complex climatic conditions, the volume of work being performed by hydraulic excavation continues to grow. Over the past 10 years, the volume of construction and installation work of the trust has grown by almost 40 percent. Numerous cases have been found of the application of hydraulic excavation in the construction of thermal and nuclear power stations (predominantly at hydroelectric projects), as well as in the construction of the protective engineering works of water resevoirs.

It is characteristic that the estimated cost for one cubic meter of earth, which can be excavated and set in place by means of hydraulic excavation, has almost not changed over the period of the 9th and the first two years of

the 10th Five-Year plan. At the same time, the ground conditions under which it is necessary to use the facilities of the trust have systematically become more severe. While the number of projects has increased, the average work volumes for them have fallen off to a considerable extent. Such a growth in the fractional nature of construction production and the almost universal unavoidable complication of the technological scheme are forcing us to solve increasingly serious organizational problems in the use of hydraulic excavation.

Under these conditions, the comparative stability in the cost of the work reflects the efforts being made by the collective of the trust to increase production efficiency. The cost of one cubic meter of earth now, including all of the auxiliary work and the laying of pipelines, amounts to 66 kopecks for an average soil group, rated at 3.67 with respect to working difficulty. It is appropriate to point out that during the years the sand hydraulic-fill dams were being erected on the Volga and Dnepr, the average earth group was rated at 2.3. The yield per individual worker in 1977 amounted to 13,800 rubles, while in physical terms, this was 30,000 m^3 per individual worker annually or 136 m^3 per worked man-day. The growth in labor productivity was 31 percent in the Ninth Five-Year Plan.

Besides participating in the construction of projects for various purposes, hydraulic excavation is being increasingly employed for the extraction of non-metallic materials. Their annual extraction volume now amounts to 12 million m^3, with more than one million m^3 of this at plants with a complete separation of gravel and sand into fractions.

The volume of general construction work amounts to 7 percent of the volume of the construction and installation work of the trust and has a tendency to increase in connection with the assigning to the trust of a full complex of work on hydraulic-fill protective engineering dikes for the Cheboksarsk and Nizhnekamsk water reservoirs, including the preparation of the foundations, the construction of drains and the securing of the slopes.

The hydraulic excavation workers of the USSR Ministry of Energy are faced with important taks in the 10th Five-Year Plan: continuing to increase labor productivity, expand the work done at large power engineering projects and introduce new equipment on a wider scale.

As experience shows, the broader application of hydraulic excavation at hydroelectric engineering and power engineering construction projects, with goal oriented engineering design solutions, permits a significant boost in the overall labor productivity and a reduction in the cost of erecting hydroelectric, nuclear and thermal power stations, as well as the protective engineering works at water resevoirs. The same applies to water management and land reclamation construction projects. It is quite important in this regard to carry out the survey with the combined efforts of the hydraulic excavation engineers, project planners, and builders of the basic structures, as well as the designers of special and nonstandard equipment.

In the course of such a joint survey, new design solutions are found which promote an increase in the efficiency and quality of construction, and at times open up unexpected possibilities for the use of hydraulic excavation, expanding the area of its application.

A completely new direction has opened up for hydraulic excavation engineers in the construction of the water engineering facilities of nuclear power stations. Calculations show that the creation of water reservoirs and basins, contained by hydraulic-fill dikes are considerably more expedient than the erection of large scale and complex cooling tower structures, the construction of which requires the use of scarce material, and bringing in a large number of skilled personnel. Such cooling water basins are especially effective, and can be built in the region of the water reservoirs of large hydroelectric units and separated from them by dikes.

There are as yet no sufficiently well proven out design solutions for several types of particularly large cooling towers. Under these conditions, the design of heat exchange cooling water reservoirs with hydraulic-fill dikes is becoming a unique reality.

At the pace of construction which has been adopted for nuclear power stations, the erection of barrier dikes for cooling water basins is entering the critical phase of the construction process as a whole. Their hydraulic-filling must be completed within three to four years so that the water basin as a whole or its first stage is ready by the time the first unit goes on-line. For an AES with a capacity of 6,000 MW, the volume of earth moving work for such dikes is figured at 10 - 20 million m^3.

The erection of the dikes has been completed and water reservoirs have been built at the Chernobyl'skaya, Kurskaya and Novovoronezhskaya AES's. Hydraulic excavation work at the construction sites and for the expansion of a number of other AES's has already started or is planned for the immediate future.

In speaking about this new and extremely important developmental trend in hydraulic excavation in the creation of water engineering complexes of AES's under construction, it is impossible not to mention some of the complicating factors.

Many construction projects are not prepared in either an organizational or a technical sense for the possible start of hydraulic excavation work, which based on the considerations indicated above, should begin as soon as possible. The authorization of the engineering project plans is being delayed, included in which are the water engineering structures and water supply complexes. For this reason, during the period of the preparatory stage of the construction, the working drawings are prepared and the requisite research is carried out to issue the project plans for the hydraulic excavation work. It is essential that the construction of the water engineering facilities of AES's, for which there are approved technical economic bases, the choice of construction site is legally authorized and financing is set up for the preparatory

period, be directly incorporated into the set of preparatory stage operations with the compilation of the appropriate technical documentation and its approval in the established procedure. This will permit starting the hydraulic excavation work a year or two earlier and will on the whole act to curtail the construction times.

The question of standardization of project design solutions with respect to the organization of water basins and the erection of dikes, insofar as this is possible under specific construction conditions, requires special treatment.

Another important trend in the development of hydraulic excavation is the transition in the erection of dams and dikes with heights up to 10 m to stratified profiles, and in the case of higher structures, to combination profiles with a free slope on the profile section. Such profiles are particularly economical in the erection of extensive dikes for engineering protection on the water reservoirs of hydroelectric stations, as well as a series of cooling water basin dikes for TES's and AES's.

Construction practice shows that dikes which are hydraulically filled with a composite wave suppressing slope with biological cover are quite stable and operate successfully for many years (for example, the dams and dikes of the water reservoirs on the Dnepr); dispensing with or reducing the volumes in securing the slopes leads to a substantial savings. Another indisputable advantage of stratified structures is the possibility of reducing the volumes for the preparation of the foundation. In a number of cases, the preparation of boggy or peat foundations, which are impassable for the existing construction equipment, has become a problem for months, and at times even longer, delaying the start of work on the erection of dams and dikes.

In the exisiting chapter of construction standards and regulations which govern the design of earthworks (SNiP II-53-73) there is a clear contradiction: on one hand, the erection of earth dams on a peat foundation is authorized, which is usually carried out without preliminary preparation of the surface (section 1.6, example 2), and on the other hand, a requirement is set up for carefully harvesting the vegetative layer (section 2.73). The condition should be reviewed for hydraulic-fill dams with a stratified profile and a greater width with respect to the base. Practice has come up with a number of acceptable design solutions, for example, where a boggy base is preliminarily washed out, and thereafter one or several longitudinal trenches are cut in it to prevent contact filtration and damage to the layer along which a plane shift is possible. However, because of the fact that the possibility of such preparation of the foundation of dams is no reflected in the standards, the solutions which have been found are realized with a great deal of labor.

Ahead in the 10th Five-Year Plan is the construction of hydraulic-fill structures 50 km long (the Cheboksarskaya GES reservoir) on the Volga and structures 90 km long on the Belaya and Kama rivers (the Nizhnekamskaya GES

reservoir). Dikes with a length of several tens of kilometers are planned at the construction sites of thermal and nuclear power stations, in which case, the cooling water basins of the latter are frequently located in boggy ground, unsuitable for other economic use. The use of stratified profiles for earth dikes without securing the slopes and with minimum volumes in the preparation of the base open up a way of substantially increasing the construction efficiency.

Experience in such work, performed at the initiative and with the participation of individual subdivisions of Gidroproyekt (the Special Design Office, Ukrgidroproyekt, etc.), as well as MOTEP [expansion unknown] with the creation of dikes for the reservoirs of the Kurskaya, Chernobyl'skaya, and Novovoronezhskaya AES's, and a series of protective structures on the Dnepr, deserves the most attentive study, and generalization and wide scale introduction into construction practice. Unfortunately, such a generalizing introduction is not being carried out, and designers frequently come out against such design solutions because they are not traditional and depart from conventional structural designs as if complexity was the determining factor in the general, filtration and wave stability of these structures. Questions of formally increasing in certain cases the cost of structures with a stratified profile or on a hydraulic-fill sand cushion with an increased fill volume are being debated. It needs to be said here that the preliminary estimates do not take into account the overall complexity of the work on the preparation of the base, the expenses for which in the course of the construction grow by several times and are covered one way or another from various sources.

Moreover, the hydraulic-fill of structures with a stratified profile does not require the expenditures of cement and metal, the use of mechanized equipment is reduced in all stages of the preparation and treatment of the slopes, and the main thing, the demand for labor resources is reduced. The need for auxiliary structures, living quarters, and subsidiary production works is reduced, and transportation expenses are curtailed. The outlays of socially necessary labor in the creation of such hydraulic-fill structures, is absolutely less than for conventional dikes with fastening of the slopes. All of this makes a very careful approach necessary, taking these considerations into account as regards the choice of the type of earthworks, which are practicable both for protected areas at reservoirs and the water engineering factilities of nuclear and thermal electric power stations. Moreover, the expediency of erecting such structures should be more convincingly reflected in the basic normative documents, primarily in the SNiP [Construction Norms and Regulations].

The complex set of new problems, which hydraulic excavation engineers did not come up against until now, is making it necessary to employ hydraulic excavation equipment in the construction of water storage electric power stations. The operation of dredgers at the Zagorskaya GAES has already started the removal of earth of an extremely complex and variegated composition; hydraulic excavation will also be employed in the construction of the Kayshyadorskaya GAES.

The development of power engineering in the east and in the southern regions of the nation is insistently bringing up the problems of effectively utilizing hydraulic excavation where there are extremely difficult soils, right up to the working of open pits with a content of up to 70-80 percent of large gravel and partially cast or cemented soils. The solution of the problem of the hydraulic-fill stacking of such soils in water engineering structures also lies ahead.

In the project planning for new GAES's, it is necessary to consider the possibility of using hydraulic excavation equipment in the construction of the upper head basins.

Particular difficulties arise in solving the problems of operating specific hydraulic excavation equipment and filling structures under severe climatic conditions, for example, such as will occur when erecting the Boguchanskaya GES and other hydroelectric structures in the even further north and northeast regions of the nation.

In the current five-year plan, hydraulic excavation is being widely used in the construction of the water engineering structures incorporated in the technical water supply system of a number of thermal electric power stations which are being newly erected and expanded. To be sited first of all here is the erection of the dikes for the fill cooling reservoir of the Pechorskaya GRES; the start of the second and third units of the GRES is linked to the completion of the first stage of the reservoir construction. The hydraulic excavation work is a decisive factor in the construction of the water systems at the construction projects of the Chigirinskaya GRES, the fifth stage of the Moldavskaya GRES and the sixth stage of the Shaturskaya GRES. The trust is engaged in the hydraulic filling of dikes for ash dumps or is otherwise participating in providing for hydraulic ash removal systems at the Troitskaya GRES and many other electric power stations.

It is impossible not to mention the work on the construction of the Dnepr-Donbass canal, and here more than 60 million m^3 of earth has been moved by 18 dredgers. The construction of other large water management structures is scheduled.

The trust has a large and diverse arsenal of technical equipment available to carry out the assignments of the 10th Five-Year Plan, which is constantly being renewed and refined. The fleet of dredgers consists of 125 type 350-50L machines and 17 type 500-60 machines which match them in terms of capacity, as well as 32 machines of other types with an overall water hand ling capability of 300,000 m^3/hr; the other basic equipment includes 16 high power hydraulic excavator and suction dredger complexes with 20R-11 plants and remote controlled hydraulic excavators with a water flow rate of up to 3,500 m^3/hr and head of up to 1.5 MPa. The total installed capacity of the hydraulic excavation equipment amounts to about 600,000 KW.

Work to increase the efficiency of hydraulic excavation equipment on one hand provides for the systematic renewal of the existing fleet, taking into account refinements in the structural designs of the dredgers, soil pumps and other special equipment, and on the other hand, provides for the development and introduction of fundamentally new machines and mechanisms, as well as the design of special attachments which are capable of stepping up the technological processes of hydraulic excavation. Within the framework of the work, the trust has practically completed the replacement of the old 300-40 dredgers with the 350-50L dredgers, which are the basic machines in its fleet. This year, the Rybinskiy hydraulic excavation plant of the Main Administration for Mechanization in Power Engineering Construction of the USSR Ministry of Energy begins the production of a modernized model of this dredger, and at the same time, the new machines division of Gidroproyekt is completing the issuance of the engineering design of a dredger of the same class, taking into account the latest achievements in the world. The plant will change over to the production of this variant in the next five-year plan.

The replacement of the 500-60 suction dredgers with the 500-60 MN suction dredgers was started in 1975 and will be completely finished during this five-year plan. The new model differs from the old one in its approximately 30 percent higher productivity, and the increase in the level of mechanization of all operational processes.

Production tests have been designed and performed on a prototype machine from the series of demountable 200-50 BR suction dredgers, it can be transported in individual sectional blocks and can be set up at construction sites in seven days. A progressive hydraulic drive system with a frame type hoisting winch has been incorporated in the structural design of the machine. These machines are intended to gradually replace the 200-50 suction dredgers, which replace the 100-40 K suction dredgers about 10 years ago.

All of the trust's suction dredgers are equipped with new design cutterheads, which improve and speed up the earth removal process.

Along with the general purpose machines indicated above, special type suction dredgers have been designed and are in service. These include the 350-50 TM suction dredger (Figure 1) for working difficult soils (plastic loamy clays, clayey and compacted soil). Its body was standardized to match the 500-60 MN suction dredger body. The drag (scoop type) 300-50 MCh (Figure 2) [not reproduced] and the 300-100 DSh (the latter with a sluice unit instead of an earth pump) suction dredgers should also be mentioned; they are intended for working gravel soils with boulder inclusions. An optimizing complex has been created to extract and enrich the sandy-gravel mass on-board the floating rig.

The changeable soil intake units for suction dredgers with a submersible suction pump are of a fundamentally new design. A new batch of such

devices has already been created for the 350-50 L suction dredger; the first unit is successfully operating in the construction of the Nizhnekomskaya GES.

Suction dredgers with submersible earth pumps prmit not only increasing the working depth, but also provide for a marked increase in the consistency of the pulp with a corresponding boost in productivity and reduction in specific electrical power consumption. Unfortunately, the conventional 16 R-9 sand pumps are still installed as the submersible pumps in the existing changeable intake units, rather than the special submersible earth pump, the design for which has already been completed, but fabrication is being delayed. This reduces the working effectiveness and impedes its expansion.

One can cite a number of other efforts to design new equipment. Vibrational cutterheads for suction dredgers are of interest, and their trial production has been started. Crushers for breaking up large inclusions of dense marly and chalky rocks, which get into the suction devices of dredging units have been introduced. To better precipitate out the lighter fractions of soil during hydraulic filling and accelerate the clarification of the discharge water, the use of equipment for the magnetic processing of the pulp has been started. A number of efforts are related to the refinement of the structural designs of the suction pumps. During this five-year plan, a complete changeover is being completed to support brackets with roller barings for the main types of intake pumps. The structural design and development of specific auxiliary machines and devices is underway, which are used in the technological processes of hydraulic excavation (floating cranes and pulp lines for operation in the case of considerable wave action, etc.). A number of efforts are related to improving the structural designs of the open type gravel plants, employed in the hydraulic excavation extraction and classification of nonmetal materials for concrete and filters.

It is expedient to execute the structural designs for the construction of high capacity gravel sorting rigs, which operate in a set with suction dredgers. These rigs should be either stationary or mobile, and allow for the production of fractionalized gravel and sand as required by the project plan conditions.

The effectiveness gained from the introduction of new equipment for 1977 amounted to 1.06 million rubles overall for the trust. However, a serious defficiency in the introduction of new equipment is the extremely long period of time for the fabrication and introduction of new technical equipment.. Frequently, work on the introduction of individual machines is drawn out over several years. Sometimes, the new designs are not realized at all, for example, the project designs for the suction pumps. The work on increasing the wear immunity of hydraulic excavation equipment is going forward at an inadequate pace.

In our opinion, it is quite obvious that it is necessary to set up a specialized scientific research center with an experimental design and technological office to provide for the new developments in hydraulic excavation. An immediate resolution of these problems is required, and it is directly related to increasing work efficiency and quality in hydraulic excavation.

Other problems are related to the development of hydraulic excavation technology and the widescale introduction of progressive engineering design solutions. The trust has recently introduced methods for hydraulic filling dams of particularly fine sands with protective covering of the slopes, which can be accomplished simultaneously with the hydraulic filling, a technology has been worked out for separate hydraulic filling of structures according to zones, the combines filling of structures from various open pits, as well as the enrichment of soil in the filling process and the forced removal of off-grade fractions.

The successful hydraulic-fill bridging of the river beds of the Dnepr and the Volga without the preliminary establishing of a banquette is rather well known; the totals savings in this case amounted to 1.8 million rubles, and this method must be more widely introduced into hydraulic power engineering construction.

A technology has been worked out for working excavations with dredgers in comparatively hard soils with precise observance of the overall dimensions, and a great deal has been gained in this regard by the work experience on the Dnepr-Donbass canal. A technology for excavations of soil at increased depth using dredgers with ejector heads is being developed.

A technology which combines scouring with preliminary explosive crumbling, as well as the simultaneous multistep working of the ledges in deep pits, has opened up completely new possibilities for the application of hydraulic excavation working of cuttings in the case of complex stratified hard soils, including chalk-marly rock. The new contribution to hydraulic excavation technology of the experience in the erection of high hydraulic spoilbanks with separate layering of the soils is also very interesting, and in this case, stable external support prisms and a long life consolidated central section are produced. There are positive results also for the introduction of methods of recultivating the surface of such hydraulic spoilbanks with the return of the areas taken out from underneath them to agriculture.

A general trend is developing in the extraction and classification of nonmetal materials towards the introduction of technological schemes using standard open type gravel sorting installations where the pulp is directly fed to the dewatering bunkers and from them to the vibrating screens. It is necessary to introduce ware resistant latticework and rubber screens on a broader scale, which increase the operational time between repairs of the screens by many times.

Also promising is the future introduction into construction of floating sorting rigs, which separate the gravel mass into standard fractions.

Work is underway on refining the organization of hydraulic excavation operations. At the present time, territorial subdivisions for hydraulic excavation engineering have been formed in all of the power engineering construction regions, the creation of one's own production bases is being expanded, and considerable attention is being devoted to the training of personnel and increasing their skill level. Steps should be taken in this field, in particular, to organize TMK's [expansion unknown] to carry out construction work on territorially separated and extensive linear construction projects, the broad introduction of advanced methods of labor organization, including the changeover of the majority of comprehensive brigades to internal cost accounting and brigade subcontracting, as well as measures to reinforce staffs with qualified specialists.

These are, in broad outline, the basic developmental trends for hydraulic engineering in hydraulic and power engineering construction.

Conclusions. 1. Experience confirms that the application of hydraulic excavation to hydraulic engineering construction can be significantly expanded, in particular, in the construction of single-design dams of local materials, the creation of water supply systems for AES's and large TES's, as well as engineering protection facilities at water reservoirs.

2. The most efficient engineering solutions, which meet the specific requirements for the use of hydraulic excavation equipment and which substantially boosts the technical economic construction indicators can be assured through the combined efforts of project planners for hydraulic engineering structures and field hydraulic engineering workers.

3. In particular, to be included as one of the important trends towards increasing construction efficiency is the wide-scale use of barrier dam structures for AES and TES cooling ponds, and protective dikes on water reservoirs with stratified wave suppressing slopes, somethings which allows for a sharp reduction in the work volumes and the demand for labor and material resources during the preparation of the foundation and the establishing of the cover. The existing standards for dam design should be made more precise in light of these considerations.

4. The project planning of the hydraulic engineering facilities for water supply systems for AES's and TETs's must be accomplished with the wide-scale utilization of the advanced experience which has been gained and the standardization of progressive design solutions.

5. The further development of hydraulic excavation engineering insistently poses the problem of organizing a scientific research and design center for the design and refinement of special equipment.

8225

CSO:1822

FUELS AND RELATED EQUIPMENT

GEOLOGY ORGANIZATIONS, ENTERPRISES REVIEW 1979 OBLIGATIONS

Moscow GEOLOGIYA NEFTI I GAZA in Russian No 4, Apr 79 pp 1-5

[Article: "Socialist Obligations of the Collectives of the Organizations and Enterprises of the USSR Ministry of Geology for 1979"]

[Text] In carrying out the historic resolutions of the 25th CPSU Congress, the collectives of the organizations and enterprises of the USSR Ministry of Geology are working persistently on fulfilling the assignments of the 10th Five-Year Plan. Having widely developed socialist competition for fulfillment and overfulfillment of the 1978 plans and for a fitting welcome to the first anniversary of the new USSR Constitution, most of the collectives have fulfilled, and for a number of indicators, have overfulfilled the established plans and socialist obligations.

The plan for increasing and confirming the reserves in 1978 was fulfilled for all types of minerals, and for 20 of them the three-year plan was fulfilled ahead of schedule, by the first anniversary of the USSR Constitution. The fulfillment of the five-year plan for confirmation in the USSR State Commission on Mineral Resources of deposits of 9 types of minerals was completed. Over 3,000 drilling and tunneling brigades fulfilled the three-year plans ahead of schedule, 88--the four-year plans, and 8--the five-year plans.

For achieving the highest results in the All-Union Socialist Competition for Increased Production Efficiency and Higher Work Quality in 1978 and Ensuring Stable Indicators in Fulfilling the Plans and Increased Obligations, 11 collectives of the geological production associations, geological administrations, trusts and expeditions of the sector were awarded Challenge Red Banners of the CPSU Central Committee, USSR Council of Ministers, All-Union Central Trade Union Council and the Komsomol Central Committee, and 6 of them were entered on the All-Union Board of Honor at the Exhibition of USSR National Achievements.

Soviet geologists, just as all our country's workers, received with great enthusiasm the decree of the CPSU Central Committee November (1978) Plenum, the speech at the plenum by Comrade L. I. Brezhnev, general secretary of

the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet, and the resolutions of the 10th Session of the USSR Supreme Soviet.

There was a response in all the collectives of the geological organizations and enterprises to the party's and government's appeal for even broader development of socialist competition, with its direction toward seeking production potentials and finding the most efficient and economical ways to achieve high final results, so that everything new and advanced would be rapidly disseminated and the competition itself would actively contribute to moving up those that were lagging behind to the level of the advanced.

Emerging as the initiator of developing socialist competition in the sector in 1979 was the collective of the Irkutsk Territorial Geological Administration, which made the commitment, through increasing the economic efficiency of the geological prospecting work, to complete the plan for the year for an increase in the reserves of all minerals by 1 December 1979 and in addition, in accordance with the procedure of the counter plan, to increase the supplies of rare metals by 10 percent and of iron ores by 5 percent, intensify comprehensive geological research in the area of the Baykal-Amur Trunkline and ensure an increase in the drilling volume through raising labor productivity. In supporting the initiative of the country's advanced enterprises--to work without anyone lagging behind--the collective of the Irkutsk Territorial Geological Administration committed itself to fulfilling the plan for the basic indicators by all the brigades and sections. At the same time, the administration's collective took on the obligation of careful expenditure of materials and electric energy, a rise in the level of efficiency expert work, complete execution of the plans for social development and giving specific assistance to agriculture.

The first to support the initiative of the Irkutsk geological prospectors were the collectives of the Ob' Geological Production Association for Oil and Gas Prospecting of Glavtyumen'geologiya, the Krasnoyarsk and Vostochno-Kaza'khstan territorial geological administrations, the Second Hydrogeological Expedition of the Voroshilovgradgeologiya Trust, of the Kirov Expedition, the Mangyshlakneftegazrazvedko Comprehensive Expedition, the drilling brigades of foremen V. A. Makar, A. A. Khalin, V. S. Solov'yev and N. D. Glebov of Glavtyumen'geologiya, of A. Ye. Nitsak and V. A. Gubin from the Irkutsk Territorial Geological Administration, of T. Zaynulov from the Samarkandgeologiya Association, of M. D. Avramets from the Kar'kovneftegazrazvedka Trust, of V. I. Orishchak from the Poltavaneftegazrazvedka Trust and of the mine-tunneling brigades headed by G. S. Akhmetzhanovyy from the Geological Administration of the Kirgiz SSR and N. A. Red'kinyy from the Samarkandgeologiya Association.

The workers in the sector that joined the socialist competition to the motto "Not One Person Alongside Lagging Behind" for fulfillment and overfulfillment of the planned assignments of the fourth year of the 10th Five-Year Plan, an increase in the efficiency of the exploration and prospecting work and achievement of high technical-economic indicators took on the following socialist obligations.

1. By 7 October 1979--the second anniversary of the USSR Constitution--to fulfill:

For the USSR Ministry of Geology: the five-year plan for increase in stocks of molybdenum and tantalum; the four-year plan for increase in stocks of iron and chromite ores, lead, zinc, tungsten, fluorspar and an increase in the capacities of the coal sections;

Including:

For the RSFSR Ministry of Geology: the five-year plan for an increase in stocks of tantalum and the four-year plan for increase in stocks of bauxites, copper and the capacities of the coal sections; to overfulfill the five-year plan for an increase in the petroleum reserves for the Udmurt ASSR by 7.7 percent;

For the Ukrainian SSR Ministry of Geology: the four-year plan for an increase in the capacities of the coal sections;

For the Kazakh SSR Ministry of Geology: the five-year plan for an increase in stocks of copper and chromite ores; the four-year plan for an increase in the stocks of iron ores; the year's plan for an increase in the stocks of phosphorites;

For the Uzbek SSR Ministry of Geology: the year's plan for an increase in the stocks of fluorspar;

For the Tadzhik SSR Geology Administration: the five-year plan for an increase in the stocks of lead and zinc;

For the Kirgiz SSR Geology Administration: the four-year plan for an increase in the stocks of tin and antimony.

2. Through improving the methodology and improving the organization of geological prospecting work, introducing the achievements of scientific-technical progress and advanced experience, to ensure an increase in the growth of stocks per ruble of expenditures, after overfulfilling, without increasing the allocations, the plan for increasing the stocks of minerals for 1979:

For the USSR Ministry of Geology: of sulfur--by 16 percent, of molybdenum, tungsten and tantalum--by 10 percent, of natural gas--by 10 percent, of petroleum--by 19 percent, of zinc--by 8 percent, of fluorspar--by 3 percent, of iron ores--by 2.5 percent, of chrysotile-asbestos, optical calcite and quartz for smelting--by 2 percent, and of copper and antimony--by 2 percent;

Including:

For the RSFSR Ministry of Geology: of natural gas--by 10 percent, petroleum --by 20 percent (at the same time, for Glavtyumen'geologiya, of natural gas --by 14 percent, of petroleum and condensate--by 23 percent), of molybdenum and tantalum--by 10 percent, of fluorspar--by 4 percent, of iron ore and lead--by 2 percent; the five-year plan for an increase in the stocks of peat;

For the Ukrainian SSR Ministry of Geology: of sulfur--by 16 percent, of petroleum--by 5 percent, of iron ores--by 3.6 percent;

For the Kazakh SSR Ministry of Geology: of tungsten by 10 percent, capacities of the coal sections by 5 percent and of copper--by 3 percent, and a five-year plan for an increase in the stocks of iron ores;

For the Uzbek SSR Ministry of Geology: of fluorspar--by 5 percent, of lead and zinc--by 1 percent, and the year's plan for an increase in the stocks of natural gas is to be fulfilled by the 62d anniversary of the Great October Revolution;

For the Georgian SSR Geology Administration: a four-year plan for an increase in the stocks of manganese ores from the Chiaturskoye deposit is to be fulfilled by the 62d anniversary of the Great October Revolution;

For the Azerbaydzhan SSR Council of Ministers Administration for Geology: of lead and zinc--by 10 percent;

For the Kirgiz SSR Administration for Geology: of tin--by 3 percent, of copper and antimony--by 2 percent;

For the Tadzhik SSR Administration for Geology: of antimony--by 6 percent, of zinc--by 8 percent, of lead--by 5 percent;

For the Turkmen SSR Administration for Geology: of natural gas--by 10 percent and of sulfur--by 12.5 percent;

For the Soyuzkvartssamotsvety Association: of piezoelectric crystal--by 1 percent, of amazonite, jasper and vein quartz--by 5 percent, of optical calcite--by 2 percent and of rock crystal--by 1 percent.

3. Through improving the organization of geological prospecting work, to submit to the USSR State Commission on Mineral Resources, 1-3 months earlier than the established deadlines, reports with an estimate of the stocks for the deposits: coal--the Krasnoluchskoye Severnoye in the Donbass, cement raw material--the Aksayskoye in Kirgiziya, of granites--the Zarabagskoye in Uzbekistan and the Kaindinskoye in Kirgiziya, underground waters--the Dzhusalinskoye in Kazakhstan and a number of deposits for water supply for the cities of Batumi, Orsha, Khabarovsk and the Aktogayskiy Mining and Concentration Combine.

4. For the purpose of assisting in the further development of agriculture:

To fulfill in four years the five-year assignment for prospecting and confirming the reserves of ground waters to irrigate land and supply pastures with water;

To turn over to agricultural organizations 600 wells from those geologically explored that have revealed ground waters suitable for water supply;

In the nonchernozem zone of the RSFSR:

To complete, by the second anniversary of the USSR Constitution, the five-year plan for hydrogeological and geological-engineering surveying for land reclamation in the northwestern part of the nonchernozem zone of the RSFSR;

To fulfill the year's plan for prospecting the areas of peat deposits by 113 percent;

To turn over for industrial development 10 deposits of building materials ahead of schedule, by the 62d anniversary of the Great October Revolution.

5. Through increasing labor productivity in regional geological surveying work, achieved as the result of using the advanced group type of surveying, to fulfill, above the year's plan:

Geological surveying on a scale of 1:200,000 in regions of Western Siberia, over an area of 5,000 square kilometers;

Aerial photo geological mapping on a scale of 1:200,000 over an area of 50,000 square kilometers;

Space photo geological mapping on a scale of 1:1,000,000 over an area of 100,000 square kilometers.

To complete the fulfillment of the five-year plan for space photo geological mapping on a scale of 1:500,000-1:1,000,000 by the second anniversary of the USSR Constitution, carrying out the mapping in 1979 over an area of 1,900,000 square kilometers, as against the 1,700,000 square kilometers according to the plan.

6. With a view to increasing the efficiency and raising the quality of geophysical work on the basis of introducing advanced methods of field surveys, as well as improving the processing and interpretation of the materials obtained:

To prepare, above the plan for turning over for deep drilling, 180 square kilometers of oil- and gas-promising areas in Western Siberian regions;

To raise the average yearly productivity of the seismic prospecting work by 5 percent as compared with the plan;

To ensure introduction of nuclear-geophysical methods on a broader scale and overfulfill the planned assignments for their introduction by 5 percent;

To implement the introduction into practical geophysical work, in the Yakutsk diamond-bearing province, of efficient seismic prospecting and electric prospecting methods to increase the resultativity of seeking out kimberlite shafts under trap rock formations.

7. Through raising labor productivity, without additional allocations, to overfulfill the plans for marine regional geophysical work by 4 percent.

8. By supporting the initiative of the country's outstanding collectives--to work without anyone lagging behind--to achieve the fulfillment of the planned assignments, with respect to the basic indicators, by all the brigades and sections.

9. In accordance with the decree of the CPSU Central Committee November (1978) Plenum, to concentrate the efforts of scientific research organizations on solving the sector's most important problems:

To fulfill ahead of schedule or above the plan at least 170 scientific research jobs and experimental-design developments, including:

From 1-2 months earlier than the deadline:

To draw up a geological map of the USSR on a scale of 1:2,500,000;

To draw up a geological map of the zone of the Baykal-Amur Trunkline on a scale of 1:500,000;

To recalculate the predicted resources of oil and gas on the territory of the USSR;

To make preliminary tests of the numerical vibration set included in the test model of the Vibrolokator Seismic Vibration Complex;

Above the plan:

To provide scientific substantiation of the perspectives for revealing hydrogenous deposits, with recommendations on the direction of the research and evaluative work on areas of sedimentary framing in the Urals, in Kazakhstan and in the basins of Eastern Siberia;

To produce experimental models and make industrial tests of the Parus-4 ore and coal hole acoustic logging equipment and the Kura-11 coal hole density logging equipment;

To prepare forecasting maps of the gas-bearing nature of the subsalt deposits of one of the objects of the Astrakhan anticline, by means of the Poisk form recognition program;

To give a quantitative estimate of the potential resources of coal and fuel shales for the territory of the USSR;

To work out a classification of the deposits of natural segregations of bitumens and to provide a map of their distribution on the territory of the USSR;

To complete at least 160 subject studies with an evaluation of good and excellent.

10. On the basis of accelerating scientific-technical progress in the sector:

To ensure overfulfillment of the planned volume of drilling geological prospecting wells, using advanced technology, by 5 percent, including high-speed drilling of at least 1,600,000 meters and 730,000 meters with detachable core-receivers;

To achieve a conditional saving of 28.5 million rubles from introducing inventions and efficiency expert proposals;

To give at least 650 applications for proposed inventions;

To bring the volume of drilling underground mine-prospecting workings, using the high-speed method, to 115,000 meters as against 110,000 in 1978;

11. To achieve an increase in the number of brigades that have reached sectorial milestones in 1979, as against 1978:

In deep prospecting drilling, by 25 percent;

In core drilling, by 10 percent;

In mine prospecting work, by 10 percent;

To bring the number of brigades that have reached sectorial milestones respectively to 150, 1340 and 83.

To overfulfill the assignments for the rate of deep exploratory drilling for oil and gas by 1.5 percent, core drilling--by 1 percent and drilling underground mines--by 2 percent.

12. To fulfill the plan for industrial output volume by 28 December 1979, and to produce for the sector's plants 500,000 rubles worth of above-plan output;

To overfulfill the year's assignment for output of finished items made of nonferrous stones by 200,000 rubles;

To raise the shift coefficient of metalworking equipment in basic production 2 percent more than that attained.

13. On the basis of carrying out organizational-technical measures to improve the technology of geological prospecting work, optimum utilization, economical consumption and careful preservation of material-technical resources, as well as widescale introduction of the initiative of the brigades of drilling foremen F. Z. Rymarenko and N. L. Tikhanovskiy of the Chernigovneftegazrazvedka Trust, to achieve a saving of 5,200 tons of steel pipes, 700 tons of rolled ferrous metals, 5,200 tons of cement, 1,420 cubic meters of timber, 35,000 tons of fuel and lubricants (conventional fuel) and 29 million kilowatt-hours of electric energy.

By using the materials saved, to drill 50,000 meters of deep wells.

14. Through mobilizing additional internal economic reserves, intensifying the policy of economy and overfulfilling the assignments for labor productivity, reducing the cost of geological prospecting work and cutting unproductive expenditures and losses, to obtain 2,890,000 rubles of above-plan profit on the whole for the sector.

15. With a view to improving the housing and cultural-everyday conditions for workers in the geological organizations, to put into operation, by 25 December 1979, apartment houses with a total area of 360,000 square meters, children's school institutions accomodating 2,560, schools accomodating 540, holiday houses in Tskhneti, clubs and recreation and reading rooms accomodating 810, dining halls seating 530, stores with 30 work places, a refrigerator with a capacity of 500 tons and vegetable storage with a capacity of 700 tons.

To ensure ahead-of-schedule utilization of capital investments for the construction of apartment houses, children's preschool institutions and other facilities for social and cultural-everyday purposes.

16. To sell the population at least 17.3 million rubles worth of consumer goods above the plan.

The workers of the geological service assure the CPSU Central Committee that, by developing socialist competition, they will increase the efficiency and raise the quality of the geological prospecting work, ensure the fulfillment and overfulfillment of the plan for economic and social development for 1979 and make a worthy contribution to expansion and strengthening of the mineral-raw materials base for the country and will achieve new progress in carrying out the historic decisions of the 25th CPSU Congress.

The socialist obligations were adopted by the collectives of the geological organizations and enterprises and were approved by the Collegium of the USSR Ministry of Geology and the Presidium of the Central Committee of the Trade Union of Geological Prospecting Workers.

12151
CSO: 1822

FUELS AND RELATED EQUIPMENT

PETROLEUM INDUSTRY COLLECTIVES' 1979 OBLIGATIONS DISCUSSED

Moscow GEOLOGIYA NEFTI I GAZA in Russian No 4, Apr 79 pp 7-9

[Article: "Socialist Obligations of the Collectives of the Enterprises and Organizations of the Ministry of the Petroleum Industry to Increase Efficiency, Improve Work Quality and Fulfill the 1979 Plan Ahead of Schedule"]

[Text] The workers, engineering and technical personnel and office workers of the petroleum industry, together with all the Soviet people, are persistently putting into effect the resolutions of the 25th CPSU Congress in circumstances of high political and labor upsurge.

Having developed socialist competition on a broad scale, many of the collectives have made a substantial contribution to the sector's successful fulfillment of the planned assignments for 1978. In 1978 Siberian oil field workers extracted the billionth ton of petroleum since the beginning of working the deposits in Western Siberia. Their work was given a high evaluation by Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet, in his congratulatory message connected with this remarkable labor victory.

Since the beginning of the five-year plan, the petroleum workers extracted 2.5 million tons of petroleum and gas condensate and 2.2 billion cubic meters of gas above the plan, and the well construction cycle has been reduced by 28.8 percent, with the directive assignment of the 25th CPSU Congress being 25-30 percent.

Over 90 of the sector's enterprises and organizations and about 1,000 brigades in the key occupations reported ahead-of-schedule completion of the assignments for three and more years of the 10th Five-Year Plan by the first anniversary of the new USSR Constitution. The collectives of Glavtyumenneftegaz, of the Bashneft', Komineft' and Gruzneft' production associations and of some other associations fulfilled the assignment for three years of the five-year plan for extraction of petroleum and gas condensate ahead of schedule.

In 1979 the sector's petroleum workers are to take on high new milestones: extract 571.1 million tons of oil and gas condensate and 51.3 billion cubic meters of gas, and drill 16.9 million meters of wells.

These vast tasks can be successfully fulfilled only on the basis of a rise in labor productivity, accelerated introduction of new equipment, advanced technology, a rise in the efficiency and quality of the work and widescale use of the advanced experience of the collectives of the brigades that proposed the initiatives, "Oil Wells--Into the Flow," "Not a Single Person Lagging Behind Alongside," "All Wells Into the Supply of Operating Ones," headed by foremen I. G. Feklov, G. M. Levin and A. D. Shakshin, heroes of Socialist Labor, D. M. Nurutdinov, M. P. Grin', A. G. Basyrov and M. S. Shatunov, USSR State Prize winners, production innovators A. F. Shinkevich, M. D. Mundyuk, V. T. Kim, R. S. Nurmukhametov, O. A. Radzhabov and many others.

In response to the resolution of the CPSU Central Committee November (1978) Plenum, and guided by the conclusions and aims set forth in the speech made at the plenum by Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet, the petroleum industry workers are developing socialist competition for the fulfillment and overfulfillment of the plan for 1979 and achievement of high final results.

The initiative to fulfill the five-year assignments by 22 April 1980, the 110th anniversary of the birth of V. I. Lenin, is being increasingly widely disseminated among the brigades in the leading occupations in the sector.

The collective of the Nizhnevartovskneftegaz Association, having fulfilled ahead of schedule the plan for three years of the five-year plan for the extraction of petroleum and high-quality indicators, adopted high socialist obligations for 1979 and appealed to all the workers in the petroleum industry to develop competition on a broad scale for ahead-of-schedule fulfillment of the assignments for 1979 for further acceleration of the development of an extremely important sector of the national economy.

The initiative of the outstanding association found a warm response among the collectives of petroleum workers.

In joining in the national socialist competition to the slogans of "Work Better Today Than Yesterday, and Tomorrow--Better Than Today" and "Not One Single Person Lagging Behind Alongside," the geologists, drillers, oil field workers, construction workers, transport workers and other workers taking part in the complex process of oil and gas extraction, after concentrating their efforts on raising the production efficiency indicators, are taking on the following obligations for 1979.

For Oil and Gas Extraction

By using the newest achievements of science and technology in the sphere of working petroleum and gas deposits, and carrying out ahead of schedule organizational-technical measures to put new production capacities into operation and reduce the inoperative resources of wells and losses of oil and gas and further improve labor and administrative organization:

To reduce labor input for the operation of an oil well by 4 percent as compared with 1978, thereby conditionally releasing over 5,000 workers from the industrial production personnel;

To ensure 82.7 percent of the oil extraction from the year's volume from completely automated oil fields, for which 19 oil fields are to be put into operation in 1979, bringing their total quantity to 217;

To obtain an increase in petroleum extraction in the amount of 20.5 million tons as compared with 1978, and to supply the national economy with 580,000 tons of oil and 180 million cubic meters of gas above the state plan, and to sell 7 million rubles worth of products in addition to the plan.

To extract 2.76 million tons of petroleum through putting into effect new methods of increasing the petroleum yield from the beds.

To obtain 15 million rubles of above-plan profit on the basis of improving the use of production capital and reducing production costs.

For Geophysical and Geological Prospecting Work and Well Construction

To ensure a further increase in efficiency and rise in quality of the seismic prospecting work through the additional introduction at 20 detachments of digital recording and at 10 detachments of nonexplosive excitation sources, thus releasing conditionally 200 persons in the geophysical crews. To raise substantially the use coefficient for the geophysical equipment through converting all the geophysical-field crews to 24-hour drilling operations. To implement, through the resources of the scientific research design organizations and experimental production facilities of the Neftegeofizika Administration, the development and manufacture of 16 types of efficient new technical devices for field and industrial geophysics.

To increase the efficiency of the geological prospecting work by 5 percent and prepare two elevations in addition to the plan by structural-exploratory drilling.

Through fuller utilization of production potentials, increasing the rates of constructing boreholes, drilling and testing wells, ensuring continuity in the construction process and also using the optimum set of geological-geophysical studies when testing exploratory wells, to reduce their construction period by 29.6 percent as compared with 1975, bringing the average

length of the construction cycle for the wells in 1979 to 91 days, with the assignment being 97.2 days, and to complete the construction of 100 wells above the established plan.

For Petroleum Pipeline and Motor Vehicle Transport

By continuing work on further raising the level of automation in petroleum pipeline transport, to put into operation 10 automated control systems for industrial processes and 2 automated control systems for production at main petroleum pipelines. Through putting into operation new equipment, mechanizing and automating production processes, to reduce the specific labor input by 4.1 percent as compared with 1978.

To reduce the cost of pumping petroleum by 0.5 percent as against the plan.

To increase the efficiency of using all types of motor vehicle transport, ensuring a 6-percent increase in the load transport volume and a 0.5-percent increase in the use coefficient for the tractor park as compared with 1978.

For All-Union Industrial Associations

On the basis of improving the organization and raising the industrial level of the production, introducing new equipment and industrial processes, improving the use of equipment, material and labor resources and introducing advanced experience:

For the Soyuzneftemashremont Association

To reduce the industrial labor-intensiveness of the goods produced by 400,000 man-hours and obtain at least a 75-percent increase in output through a rise in labor productivity;

Implement a set of measures for a further rise in the quality of the industrial output, certify 10 items for the "Seal of Quality"and 80 items for the first-quality category and develop the output of 30 types of new items;

By using the production capacities and available production potentials more fully, to accomplish fulfillment of the state plan for product sales volume on 28 December 1979 and ensure priority supplies to regions in Western Siberia. To sell 1,300,000 rubles worth of goods above the plan.

For the Soyuzneftegazpererabotka Association

To produce 30,000 tons of stable natural gasoline and 50 million cubic meters of dry gas above the plan and sell 2 million rubles worth of products.

For the Soyuzneftespetsmaterialy Association

To ensure an increase in labor productivity by 2.5 percent as against 1978, and produce and sell 500,000 rubles worth of output above the plan. To manufacture 1,000 tons of modified barytic weighting material and 1,000 tons of high- and first-grade dry muds above the established plan.

For Capital Construction

On the basis of concentrating capital investments, improving the organization of construction work and introducing advanced complete-block methods of construction, to increase the efficiency and fulfill the year's plan for construction and installation work by their own construction organizations ahead of schedule--on 30 December 1979.

12151
CSO: 1822

END